



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/917,195	07/26/2001	Song Xue	08305/100001/20-15	9616

7590 03/25/2005

Thomas J D'Amico  
Dickstein Shapiro Morin & Oshinsky LLP  
2101 L Street NW  
Washington, DC 20037-1526

EXAMINER
----------

WILSON, JACQUELINE B

ART UNIT	PAPER NUMBER
----------	--------------

2612

DATE MAILED: 03/25/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

09/917,195

Applicant(s)

XUE, SONG

Examiner

Jacqueline Wilson

Art Unit

2612

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 26 July 2001.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-14 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☐ Claim(s) 1,2,7,12 and 14 is/are rejected.
- 7) ☒ Claim(s) 3-6 and 8-11, 13 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date 04/01/03.
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_.

## DETAILED ACTION

### *Drawings*

1. The drawings are objected to under 37 CFR 1.83(a) because they fail to show element 533 in fig. 5 as described in the specification. Any structural detail that is essential for a proper understanding of the disclosed invention should be shown in the drawing. MPEP § 608.02(d). Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

***Claim Rejections - 35 USC § 102***

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

3. **Claims 1, 2, 7, 12, 14 are rejected under 35 U.S.C. 102(b) as being anticipated by Tsang et al. (US 5,900,623).**

Regarding Claim 1, Tsang et al teaches an image sensor comprising a voltage boosting circuit (referred to as charge pump; col. 10, line 15), which produces a boosted reset voltage on a reset line at a higher level than a power supply output level (col. 9, lines 48-51). Tsang et al further teaches that blooming occurs when a photodiode PD is momentarily forward biased (col. 10, lines 12+). To prevent blooming, Tsang et al teaches clamping the reverse-biased voltage across the photodiode so that it is no less than a predetermined voltage. This reads on the limitation of a voltage protection circuit that is connected to the reset line and which protects at least one transistor (fig. 4, first transistor N1 and second transistor N2) against being forward biased by the boosted reset voltage.

Regarding Claim 2, Tsang et al teaches at least one additional transistor in the voltage protection circuit (N2). Since the device prevents the photodiode from blooming (caused by large currents from the voltage boosting circuit), it is inherent that the transistors in the voltage protection circuit (N1 and N2) are of a type which cannot be forward biased by the boosted reset voltage.

Regarding Claim 7, Tsang et al teaches an output switch (N2) which is capable of isolating against a voltage higher than a supply voltage. Tsang et al teaches that blooming occurs when a photodiode PD is momentarily forward biased (col. 10, lines 12+). To prevent blooming, Tsang et al teaches clamping the reverse-biased voltage across the photodiode so that it is no less than a predetermined voltage. Therefore, switch (fig. 4, N2) is isolated against high voltage levels such that the photodiode (PD) is not forward biased. This inherently teaches that the switch is selectively turned on and off depending on the level of boosting for the purpose of protecting the photodiode from blooming.

Regarding Claim 12, although one photocell is described, Tsang et al teaches sensor arrays include a row select transistor (N5), including a row select line, for selecting a row for output. It is inherent that a row driver is present in the device for sending a signal to specific rows, in the array, to output for further processing. Thus making another photocell contain the second line for row select, as claimed.

Claim 14 is analyzed and discussed with respect to Claim 1. (See rejection of Claim 1 above.)

***Allowable Subject Matter***

4. Claims 3-6, 8-11, and 13 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Regarding Claim 3, the prior art neither teaches nor fairly suggests an image sensor comprising a voltage boosting circuit, which produces a boosted reset voltage on a reset line at a higher level than a power supply output level, and a voltage protection circuit, which is connected to said reset line, and which protects at least one transistor against being forward biased by said boosted reset voltage, as claimed in claim 1, **wherein said voltage boosting circuit includes a first capacitor, and first and second switching elements, which is first precharged at one plate by said first switching element, and subsequently isolated at said one plate by said second switching element, and biased at the other plate to produce an output voltage which is increased to a boosted voltage related to an amount of said bias added to an amount of the precharge.**

Regarding Claim 8, the prior art neither teaches nor fairly suggests an image sensor comprising a voltage boosting circuit, which produces a boosted reset voltage on a reset line at a higher level than a power supply output level, and a voltage protection circuit, which is connected to said reset line, and which protects at least one transistor against being forward biased by said boosted reset voltage, as claimed in claim 1, further comprising an output switch, which capable of isolating against voltage higher than a supply voltage, which selectively turned on and off based on a level of boosting, as claimed in claim 7, and wherein said output switch further comprises **first passing transistor and a second shorting transistor, said first passing transistor series between said boosted reset voltage and an output and said second shorting transistor connected between said output line and ground.**

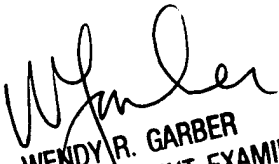
**Conclusion**

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jacqueline Wilson whose telephone number is (571) 272-7322. The examiner can normally be reached on 8:30am-5:00pm (alternate Fridays off).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Wendy Garber can be reached on (571) 272-7308. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

JW  
03/14/05

  
WENDY R. GARBER  
SUPERVISORY PATENT EXAMINER  
TECHNOLOGY CENTER 2600